

CA VOLKOV, V.V.

A new miotic drug, benzamon, and its therapeutic significance in glaucoma. B. L. Polyak and V. V. Volkov (Kirov Military Acad.). *Vestnik Oftalmol.* 31, No. 7, 18-21

(1952).—Benzamon, trimethylsulfurylammonium benzene-sulfonate, a solid, m. 133-4°, sol. in H₂O and EtOH, is a strong miotic which is non-hygroscopic and stable in air. It is analogous to furazone and is superior to pilocarpine; it does not cause side reactions, except for occasional temporary clouding of vision. Its application to the glaucomatous eyes (10% soln.) led to satisfactory improvement in several clinical cases. G. M. Kozolapoff

VOLKOV, V.V... podpolkovnik med.sluzhby, kand.med.nauk., LIZOGUBOV, V.N.
podpolkovnik med.sluzhby.

Outpatient treatment of ametropia among the troops and the effects
of corrections on firing practice. Voen.-med.zhur. no.8:58-62 Ag '56
(MIRA 12:1)

(EYE--ACCOMMODATION AND REFRACTION)
(SHOOTING, MILITARY)

Volkov, V.V.

GALANIN, N.F., polkovnik meditsinskoy sluzhby, professor; POLYAK, B.L.,
polkovnik meditsinskoy sluzhby, professor; ~~VOLKOV, V.V.~~ kandidat
meditsinskikh nauk; KRICHAGIN, V.I., kandidat meditsinskikh nauk;
MEDVEDEV, V.I., kandidat meditsinskikh nauk

Working conditions of radar operators and possible means of preventing
general and visual fatigue. Voen.-med.zhur. no.9:28-32 S '56.
(MLRA 10:3)

1. Chlen-korrespondent AMN SSSR (for Galanin)
(ELECTRICITY--PHYSIOLOGICAL EFFECT)
(RADAR--HYGIENIC ASPECTS)
(EYE--CARE AND HYGIENE)

VOLKOV, V.V.

Argyrosis of unusual origin. Vest. oft. 70 no.1:41-42 Ja-F '57
(MIRA 10:5)

1. Kafedra oftalmologii (zav.-prof. B.L. Polyak) Voenno-
meditsinskoy akademii imeni S.M. Kirova.

(EYELIDS, dis.

argyria, caused by sodium iodide eye prep. admin. by
silver spoon) (Rus)

(SILVER, inj. eff.

argyria of eyelids caused by sodium iodide eye prep.
admin. by silver spoon) (Rus)

(SODIUM, inj. eff.

iodide eye prep. admin. by silver spoon causing argyria of
eyelids) (Rus)

(IODIDES, inj. eff.

sodium iodide eye prep. admin. by silver spoon causing
argyria of eyelids) (Rus)

VOLKOV, V.V., kand.meditsinskikh nauk; GORBAN', A.I., kand.meditsinskikh nauk; ZAV'YALOV, I.A., vrach; ZAKHAROV, V.A., vrach

Some proposals concerning the technic of plastic dacryocystorhinostomy.
Oft. zhur. 15 no.5:278-280 '60. (MIRA 13:9)

1. Iz kafedry oftal'mologii (nachal'nik - prof. B.L. Polyak)
Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.
(DACRYOCYSTORHINOSTOMY)

VOLKOV, V.V.

Correlation of volcanic and sedimentary facies in Cambrian cross sections in the transition zone of the Katun' anticlinorium in the direction of the Anzhy-Chuya synclinorium (Gornyy Altai).
Geol. i geofiz. no.3:62-71 '65. (MIRA 1846)

1. Zapadno-Sibirskoye geologicheskoye upravleniye, Novokuznetsk.

VOLKOV, V.V., inzh.

Making the concrete lining of tunnels. Transp. stroi. 13 no.7:71-73
Jl '63. (MIRA 16:9)

(Tunnel lining)

21406

5/024/61/000/002/004/014
E113/E135

26.2190 also 1068, 1089

AUTHOR: Volkov, V.V. (Sverdlovsk)

TITLE: Automatic control of long stroke pneumatic actuators

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.2, pp. 78-84

TEXT: In this article a method for the automatic control of loaded pneumatic actuators is presented. Loaded pneumatic actuator is defined as one whose piston speed builds up gradually on the course of its motions in contrast with the unloaded actuator whose piston has very high acceleration at the beginning of the motion hence a quick attainment of maximum speed which does not vary appreciably during the rest of the motion. According to the method worked out below, an automatic control system was built for a longstroke pneumatic actuator and has been operating successfully since October 1959 in a tube factory. To bring the piston of the actuator together with its load to standstill the following procedure is probably the most efficient. Air is fed into the cylinder and the piston is accelerated to a certain point; at this instant the high pressure air is switched to the space in

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E113/E135

Automatic control of longstroke

front of the moving piston and the space behind the piston is connected to the atmosphere. Thus the piston is slowed down and if the point at which the deceleration starts is correctly chosen then the load of the actuator will stop at a predetermined position. This point is determined as a function of the parameters of motion (velocity, acceleration, pressure, etc.). Along the line of motion of the actuator's load point x_k (Fig.1) is chosen in such a way that for any practical combination of parameters of motion and disturbing forces $x_k < x_T$ where x_T is the coordinate of point where the braking action starts. Point x_0 is taken as origin so that $x_0 < x_k$. Coordinates x_0 and x_k are constant and x_T is variable. The concept of control function of pneumatic actuator is introduced. The control function of pneumatic actuator is such a relationship between time t_B , the parameters of motion and coordinates of points x_0 and x_k that deceleration, after time t_B which is counted from the instant the load of the actuator has passed point x_k , leads to the load terminating its motion at a given point x_0 , at any values of parameters of motion. From this follows that after time t_B the load of the actuator will be at the point x_T where deceleration commences. The control

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function is derived by considering the dynamic equation of motion and the work done by the braking forces to bring the moving parts and the load of the actuator to standstill in the interval of $t_0 - x_T$. Mathematically,

$$v = dx/dt = \dot{x}$$

$$m\ddot{x} + k\dot{x} = pS_0 - F_{\text{res}} \quad (2a)$$

$$A = \int_{x_T}^0 F(x) dx \quad \text{or} \quad A = \int_0^{t_B} F[x(t)] \frac{dx}{dt} dt \quad (13)$$

$$F[x(t)] = pS_0 + F_{\text{res}} + kV \quad (14)$$

where: m - mass of moving parts and load; p - pressure of air in the mains; S - area of piston; F_{res} - reaction forces acting against the motion of the actuator's load along its line of motion; k - coefficient of friction; V - instantaneous speed of load, m/sec. The expressions that can be obtained from these

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considerations comprise a system of seven linear equations from which the control function of the pneumatic actuator may be found. Two particular cases important in practice are considered in more detail. In the first case the friction forces which are the function of the velocity of load are neglected. If this simplification is introduced an explicit expression for the control function can be obtained from the relationships derived from the above two considerations. In the second case a simplification is introduced which is possible in those cases where the effect of disturbing forces at the beginning of motion of the load may be neglected. This assumption is always valid for the forward stroke and in a number of cases for the backward one as well. This assumption means that for the equations describing the motion of the actuator initial conditions $x_0 = 0$ and $V_0 = 0$ may be used. In this case the expression for the control function is in a fairly simple form. The block diagram of the automatic control system for the pneumatic actuator is shown in Fig.3. Its realisation can be done by very simple means of common electro-pneumatic air valves if the principle described in this article is followed.

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Automatic control of long stroke ...

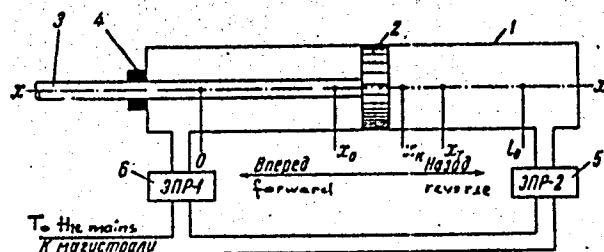


Fig.1. 1 - cylinder; 2 - piston; 3 - piston rod with load;
4 - sealing; 5, 6 - electropneumatic air valves.
Вперед - forward; Назад - reverse;
К MAZUCH PAU - to the mains.

There are 3 figures and 2 Soviet references.

SUBMITTED: February 15, 1960

Card 5/6

VOIKOV, V.V.

Stop cock for fractionating columns. Zav. lab. 22 no.9:1121 '56.
(MIRA 9:12)

1. Gorlovskiy azotno-tukovyy zavod.
(Distillation apparatus)

VOLKOV, V. V.

20525 VOLKOV, V. V. Venera vesnoy 1940 g. Byulleten' vnesoyuz. Astron.-geodez. o-va, No. 5, 1949, s. 17-21.

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva - 1949

3 (4)

AUTHOR:

Volkov, V. V.

SOV/6-59-11-11/21

TITLE:

Interpolation Method of Adjustment of Position Coordinates
at the Stereotriangulation

PERIODICAL:

Geodeziya i kartografiya, 1959, Nr 11, pp 28-34 (USSR)

ABSTRACT:

When establishing a stereotriangulation net on a stereo-planigraph the horizontal position of points is obtained in the photogrammetric coordinate system. The nets are affected by random and systematic errors. Two main types of position changes are distinguished: scale and the angle change. The latter shows in the deviation of the angle of rotation of the axis of coordinates from the photogrammetric system as related to the geodetic system. In the present method of net adjustment the position change is determined first. Subsequently the position change is simultaneously removed with geodetic orientation, which reduces considerably the calculation. For adjustment of each flight line two position bases, at the beginning and at the end of the net are necessary. Each base must, at least, contain three basic points. The basic point coordinates can be calculated in the same system (that from the year 1942 or in the conventional system).

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Interpolation Method of Adjustment of Position
Coordinates at the Stereotriangulation

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Besides, each base may have an independent coordinate system. In the latter case angles of deflection have to be oriented according to the astronomical azimuth. Table 1 contains the permissible distances between the position bases for various position- and aerial photographs. Experience proved that the relative linear deviation does not exceed 1 : 1000 - 1:2000. The article contains a description of the principles of the interpolation method for adjustment of the photogrammetric position coordinates and the method is illustrated by an example. Application of this method makes it possible to evaluate nets with 25 or more photography bases, to remove the position change and to use isolated bases as horizontal photographic controls. There are 2 figures and 5 tables.

Card 2/2

VOLKOV, V.V. (Sverdlovsk)

Problem concerning the automatic control of a long-stroke pneumatic drive. Izv.AN SSSR.Otd tekhn.Energ.i avtom. no.2:78-84. Mr-Ap '61.

(MIRA 14:4)

(Pneumatic machinery)

S/130/61/000/009/005/005
A006/A101

AUTHORS: Volkov, V.V.; Gutnikov, E. Yu.; Kostenko, M. A.

TITLE: Electronic automatic control device for pipe rolling mills

PERIODICAL: Metallurg, ⁶no. 9, 1961, 28-31

TEXT: The special designing office at "Uralmontazhavtomatika" Trust in cooperation with the Pervoural'skiy Novotrubnyy zavod (New Pipe-rolling Plant) has automated the "140 no.3" pipe rolling mill by automation of the long-running pneumodrives of the support bearings and of the clamping device of the burnishing stands. Optimum automatic control of the pneumodrive was only possible with the aid of a specially developed electronic computer (ERU). The operation of the control system is demonstrated on the example of the piston back stroke (Fig. 2). Air is supplied to the right hand cylinder hollow of the pneumodrive and the piston is driven away. At point x_t the right hand hollow of the cylinder is open to air access and air is supplied to the left hand hollow as a counter-pressure brake. The coordinate of point x_t is selected in such a manner that the piston will be stopped in the extremal position (point l_0); the left hand hollow is then open to air access. The coordinate of point x_t depends generally

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Electronic automatic control device ...

S/130/61/000/009/005/005
A006/A101

on factors affecting the pneumodrive motion. The coordinates of x_t for each piston stroke are determined by the computer units of the electronic device, i.e. electronic time relays with automatic control of the forward and back stroke interval. A point with a fixed coordinate (x_k) is selected on the piston trajectory. Values of air pressure and piston speed, when passing through this point, are determined by pickups and the computer units calculate the time gap within which the piston is at point x_t when the stop command is given. The information from the pickups is supplied to the control system which is shown in a block diagram. Reduction of pipes by the pressure device is controlled by maintaining constant the motor load of the main drive for each pipe profile. The electronic control device of the motor load ЭПН (ERN) is the main link of the automatic control system of pipe reduction using the current of the rolling-mill motor. A d-c transformer is used as a pickup of the motor load, and an asynchronous short-circuit electric motor of the pressure device is employed as servo mechanism. An electronic time relay supplies the command for the disjunction of rolls to a given magnitude to adjust the clamping of the pipe to be rolled. As a result of the automated process, the efficiency of the unit was raised by 5 - 6% liberating 12 attendants. There are 4 figures.

ASSOCIATION: SPKB tresta "Uralmontazhavtomatika" (Special Planning and Designing Office at "Uralmontazhavtomatika" Trust)

Card 2/3

VOLKOV, Vasiliiy Vladimirovich; GUTNIKOV, Eduard Yul'yevich; KOSTENKO, Mikhail Afanas'yevich; DRALYUK, B.N., ~~retsentsent~~; SYRCHINA, M.M., red. izd-va; MAL'KOVA, N.T., tekhn. red.

[Automatic control of a long-stroke pneumatic drive] Avtomaticheskoe upravlenie dlinnokhodovym pnevmoprivodom. Sverdlovsk, Metallurgizdat, 1962. 69 p. (MIRA 15:7)
(Electronic control)
(Pipe mills—Pneumatic driving)

38095. VOLKOV, V. V.

Opredeleniye uplotneniya valenikh napog po vodopronitsayemosti.
Legkaya prom-st', 1949, no. 11, s. 22-24

VOLKOV, V. V.

VOLKOV, V. V. (Lecturer) and ZHURAVLEV, A. A. (Doctor, Department of Pathological Physiology. Uzbek State Agricultural Institute). About the Anaphylaxis in sheep.

So: Veterinariya; 23; 4; April 1946; Uncl.

TABCON

VOLKOV, V.V. (Kislovodsk, ul.40 let Oktyabrya, d.24, kv.22)

Closure of the duodenal stump following gastrectomy. Nov. khir. arkh.
no.5:26-28 S-O '60. (MIRA 14:12)

1. Khirurgicheskoye otdeleniye (zav. - V.V.Volkov) Kislovodskoy
gorodskoy bol'nitsy No.1.
(STOMACH--SURGERY) (DUODENUM--SURGERY)

AUTHORS: Volkov Strelkov, N.K. and Volkov, V.V. 605
TITLE: Experience in the Application of Oil Mist Lubrication in Ball Bearing Supported Grinding Spindles (Opyt Prinleneniya Smazki Maslyanyim Tumanom Sharikopodshipnikovyykh Opor).
PERIODICAL: "Stanki i Instrument" (Machine Tools and Cutting Tools, No.3, 1957, pp.40-41 (U.S.S.R.)).
ABSTRACT: Tests at the IGPZ Imeni L.M. Kaganovicha are reported wherein ball bearings supporting internal grinding spindles previously packed with sodium-lithium soap loaded grease were lubricated by an oil mist produced by a compressed air pulveriser. The service life of these spindles was increased from about 100 to over 400 hours. The mist is supplied at a pressure of 200 to 300 kg/cm², 2 to 3 g/hr per spindle are used and 1 to 2 m³/hr of compressed air.

Card 1/1

VOLKOV, V.V.

"Investigating Gas Formation in a Suspended Layer of Fine-Grained Fuel." Cand
Tech Sci, Ural Polytechnic Inst, Sverdlovsk, 1953. (RZhKhim, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher
Educational Institutions (13)
SO: Sum. No. 598, 29 Jul 55

VOLKOV, V.V., inzh.; KOPEYKINA, N.N., inzh.; FEYGIN, M.G., inzh.

The R-3 device for automatic registration of the work of
construction cranes. Mekh. stroi. 19 no.10:22-23 0 '62.
(MIRA 15:12)

(Counting devices)
(Cranes, derricks, etc.—Equipment and supplies)

VOLKOV, V.V.

Adjusting triangulation nets from photographs constructed on
the SPR-2 stereoprojector. Geod.1 kart. no.4:43-48 Ap '62.
(MIRA 15:12)

(Aerial ~~photogrammetry~~) (Triangulation)

CPA VOLKOV, V. Ya.

4

INFLUENCE OF COLLOIDS ON ELECTRODE PROCESSES. V. Ya. Volkov. *Trans. Kirov. Inst. Chem. Tech. Kazan* 1935, No. 4-5, 57-79.—Anode polarization is absent in the electrolysis of 0.5-1N $ZnSO_4$ in the presence of gelatin, ovalbumin or agar, while cathode polarization rises to a max., and then falls with increasing concn. of these colloids. The rise is ascribed to the binding of Zn by the colloids, with consequent diminution in its ionic concn., while the subsequent fall is due to increase in $[Zn^{++}]$, owing to binding of H_2O by the colloids. B. C. A.

ASH-51A METALLURGICAL LITERATURE CLASSIFICATION

VOIKOV, V.Ya.; SELEVTSSEV, V.F.

Calculating the area of assimilation surface in cucumber plants.
Fiziol. rast. 6 no.5:619-622 8-0 '59. (MIRA 13:2)

1. Ural Agricultural Scientific-Research Institute, Sverdlovsk.
(Leaves)

VOLKOV, V. Ya.

"Methods of Increasing the Vitality and Improving the Varietal Qualities of the Seeds of Hothouse Cucumbers." Cand Biol Sci, All-Union Inst of Plant Growing; All-Union Order of Lenin Academy of Agricultural Sciences Lenin V. I. Lenin, Leningrad, 1955. (KL, No 12, Mar 55)

So: Sum. No 670, 29 Sept 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

L 17735-66 EWT(1) CS

ACC NR: AT6006214

SOURCE CODE: UR/0000/65/000/000/0104/0110

AUTHOR: Aleksandrov, Yu. V.; Volkov, V. Ya.

ORG: none

TITLE: Grapho-analytic method for approximate determination of transfer functions from their amplitude-phase characteristics

SOURCE: AN SSSR. Institut avtomatiki i telemekhaniki. Tekhnicheskaya Kibernetika (Technical cybernetics). Moscow, Izd-vo Nauka, 1965, 104-110

TOPIC TAGS: automatic control, automatic control system, transfer function determination

ABSTRACT:: A grapho-analytic method is presented for approximate determination of the transfer function of a complex dynamic system on the basis of its attenuation-phase characteristics. This method can be applied to linear systems of minimum-phase as well as of nonminimum-phase types. The transfer function of the dynamic system is taken in the form of a rational fraction for which corresponding attenuation and phase characteristics (logarithmic characteristics) $A(\omega)$ and $\phi(\omega)$ as functions of unknown time parameters T_1, T_k, T_m, T_s , and parameters ζ_s and ζ_m are written. The problem of determining the transfer function is reduced to determining unknown parameters on the basis of graphs of $A(\omega)$ and $\phi(\omega)$. The basic idea of the method consists in the decomposition of the attenuation characteristic $A(\omega)$ into characteristics of elementary

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ACC NR: AT6006214

dynamic components and constructing their asymptotes. The time constants T_1 , T_k , T_m , and T_g are determined on the basis of asymptotic attenuation characteristic of the components. To determine the unknowns ζ_s and ξ_m , the system of $S + M$ equations is derived. The sets of parameters $\{T\}^1$ and $\{\xi\}^1$ define the first approximation of the transfer function. To obtain more exact values of parameters of the transfer function, the method of successive approximations is applied. An iterative procedure is presented. The method is illustrated by an example in which the transfer function was approximately calculated from given attenuation and phase characteristics of a certain stable dynamic system. It is stressed that this method makes it possible to calculate the transfer function with any desired accuracy and can be applied to systems with delay components. Orig. art. has: 7 formulas. [LK]

SUB CODE: 01/ SUBM DATE: 05Nov65/ ORIG REF: 003/ ATD PRESS: 4701

TS
Card 2/2

VASIL'YEV, Zh.Kh.; VOLKOV, V.Ye.

Use of hydrocortisone in operations on the heart. Nauch.
trudy Kaz. gos. med. inst. 14:387-388 '64. (MIRA 18:9)

1. Kafedra gosptal'noy khirurgii No.2 (zav. - prof. N.P. Medvedev) i kafedra patologicheskoy fiziologii (zav. - prof. M.A.Yerzin) Kazanskogo meditsinskogo instituta; kafedra khirurgii No.2 (zav. - prof. P.V.Kravchenko) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachev imeni Lenina.

VOVKOV, V.Ye.; LIKHTENSHTEYN, A.O.

Some causes of the ineffectiveness and complications in intra-arterial blood transfusion. Sov. med. 27 no.11:8-11 N '64. (MIRA 18:7)

1. Kafedra khirurgii i neotlozhnoy khirurgii (zav. - prof. P.V. Kravchenko) Kazanskogo instituta usovershenstvovaniya vrachey imeni V.I. Lenina i otdeleniye grudnoy khirurgii (zav. - kand. med. nauk A.O. Likhtenshteyn) Kazanskoy dorozhnoy klinicheskoy bol'nitsy.

VOIKOV, V.Ye.; FEDOTOV, S.D.

Pancreatic fistulae in acute pancreatitis and their treatment.
Sov. med. 28 no.10:83-86 G '67. (MIRA 18:11)

1. Kafedra khirurgii i neotlozhnoy khirurgii (zav.- prof.
E.V. Kravchenko) Kazanskogo instituta uzoverysheniya
vrachey imeni Lenina.

KRAVCHENKO, P.V., prof.; VOLKOV, V.Ye., aspirant.

Surgical technique in acute pancreatitis and cholecysto-
pancreatitis. Kaz.med.zhur. no.3:28-30 My-Je'63.

(MIRA 16:9)

1. Kafedra khirurgii i neotlozhnoy khirurgii (zav. - prof.
P.V.Kravchenko) Kazanskogo gosudarstvennogo instituta dlya
usovershenstvovaniya vrachey imeni Lenina.

(PANCREAS---DISEASES) (GALLBLADDER---DISEASES)

VOLKOV, V.Ye.

Pituitary-adrenocortical insufficiency and its elimination during surgical interventions for cancer. Kaz. med. zhur. no.2:84-86 Mr-Apr '62. (MIRA 15:6)

1. Kafedra khirurgii i neotlozhnoy khirurgii (zav. - prof. P.V. Kravchenko) Kazanskogo Gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni V.I. Lenina.

(ADRENAL GLANDS--DISEASES)

(PITUITARY BODY--DISEASES)

(CANCER)

KRAVCHENKO, P.V., prof.; VOLKOV, V.Ye.

Diagnosis and treatment of acute cholecystopancreatitis. Khirurgiia
no.3:3-7 '62. (MIRA 15:3)

1. Iz kafedry khiurgii i neotlozhnoy khirurgii (zav. - prof.
P.V. Kravchenko) Kazanskogo instituta usovershenstvovaniya
vrachey imeni V.I. Lenina.
(~~CALL~~ BLADDER--DISEASES) (PANCREAS--DISEASES)

VOLKOV, V.Ye.

Emergency corticosteroid treatment in surgical interventions. Sov.
med. 25 no.5:82-86 My '62. (MIRA 15:8)

1. Iz kafedry khirurgii i neotlozhnoy khirurgii (zav. - prof. P.V.
Kravchenko) Kazanskogo gosudarstvennogo institute usovershenstvo-
vaniya vrachey imeni V.I.Lenina.
(CORTICOSTEROIDS) (OPERATIONS, SURGICAL)

VOLKOV, V.Ye.

Acute adrenal cortex insufficiency and its significance in
surgical practice. Khirurgiia 39 no.9:62-66 S'63
(MIRA 17:3)

1. Iz kafedry khirurgii (zav. - prof. P.V. Kravchenko) Ka-
zanskogo instituta usovershenstvovaniya vrachey imeni V.I.Lenina.

VOLKOV, V. Ye.,

Use of hydrocortisone in acute hypotension. Vest. khir. 70
no.6:37-40 J.'63 (MIRA 16:12)

1. Iz kafedry khirurgii i neotlozhmoy khirurgii (zav. -
prof. P.V.Kravchenko) Kazanskogo instituta usovershenstvova-
niya vrachey imeni V.I.Lenina. Adres avtora: Kazan', ul. N.
Yershova, d.65, Dorozhnaya klinicheskaya bol'nitsa.

VOLKOV, V. Ye., aspirant

Corticosteroid therapy in acute adrenocortical insufficiency in surgical practice. Kaz. med. zhur. 4:66-68 J1-Ag'63
(MIRA 17:2)

1. Kafedra khirurgii i neotlozhnoy khirurgii (zav. - prof. P.V.Kravchenko) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni Lenina.

VOLKOV, V.Ye. (Kazan')

Adrenocortical hormones and their emergency use in surgery.
Klin. med. 41 no.7:96-99 J1'63 (MIRA 16:12)

1. 1. Iz kafedry khirurgii i neotlozhnoy khirurgii (zav. - prof.
P.V. Kravchenko) Kazanskogo instituta usovershenstvovaniya
vrachey imeni V.I. Lenina.

KRAVCHENKO, P.V., prof.; VOLKOV, V.Ye.

Treatment of closed wounds of the liver and spleen. Kaz.med.zhur.
no.3:27-28 My-Je '62. (MIRA 15:9)

1. Kafedra khirurgii i neotlozhnoy khirurgii (zav. - prof. P.V. Kravchenko) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni Lenina.
(LIVER--WOUNDS AND INJURIES) (SPLEEN--WOUNDS AND INJURIES)

VOLKOV, V. Ye. (Kazan')

Case of death following hyperplasia of the thymus in a child. Klin.
med. no.11:132-133 '61. (MIRA 14:12)

1. Iz kafedry khirurgii i neotlozhnoy khirurgii (zav. - prof.
P. V. Kravchenko) Kazanskogo instituta usovershenstvovaniya vrachey
imeni V. I. Lenina.

(THYMUS GLAND—DISEASES)

KRAVCHENKO, P. V.; VOLKOV, V. Ye. (Kazan')

Role of pancreatic enzymes in the etiology of acute cholecystitis.
Klin. med. no.2:21-23 '62. (MIRA 15:4)

1. Iz kafedry khirurgii i neotlozhnoy khirurgii (zav. - prof.
P. V. Kravchenko Kazanskogo instituta usovershenstvovaniya vrachey
imeni V. I. Lenina.

(GALL BLADDER—DISEASES)
(PANCREAS—SECRETIONS)

S/058/62/000/006/035/136
A061/A10:

AUTHORS: Korshunov, A. V., Volkov, V. Ye.

TITLE: On some rules governing the spectra of symmetrical trihalide-substituted benzene crystals

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1962, 36, abstract 6V246
(In collection: "Nekotoryye vopr. emission, i molekulyarn. spektroskopii". Krasnoyarsk, 1960, 168 - 172)

TEXT: Low-frequency Raman spectra of 1,3,5-trichlorobenzene (I) and 1,3,5-tribromobenzene (II) single crystals were examined in nonpolarized light for two orientations of the single crystals. The following lines (cm^{-1}) were observed in spectrum (I): 21.4; 33.4; 46.4, and 57. In (II): 21.4; 28.9; 36.5, and 43.9. The line intensities were found to depend on the single crystal orientation. The spectrum was interpreted in terms of rotational molecular oscillations in the crystal lattice. The conclusion is corroborated by indirect data on the correlation between melting temperature, the coefficient of compact packing, and the mean value of the quasielastic constant for rotational oscillations. [Abstracter's note: Complete translation] V. Pivovarov

Card 1/1

VOLKOV, V.Ye.

Abdominal syndrome in pleuropulmonary diseases. Kaz. med. zhur. no.4:
35-37 J1-Ag '61. (MIRA 15:2)

1. Kafedra khirurgii i neotlozhnoy khirurgii (zav. - prof. P.V. Kravchenko) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni V.I.Lenina i otdeleniye neotlozhnoy khirurgii bol'nitsy No.5 (zav. otdeleniyem - N.I.Polozova).
(PLEURA DISEASES)

VOLKOV, V.Ye.

Collapse and the functional activity of the adrenal cortex. Khirurgiia
40 no.7:65-68 J1 '64. (MIRA 18:2)

1. Kafedra khirurgii i neotlozhnoy khirurgii (zav. - prof. P.V. Krav-
chenko) Kazanskogo instituta usovershenstvovaniya vrachey imeni Lenina.

KORSHUNOV, A.V.; VOLKOV, V.Ye.

Spectroscopic determination of the isomorphic nature of certain
organic crystals. Trudy Sib.tekh.inst. no.24:24-29 '59.
(MIRA 14:3)

(Organic compounds--Spectra)

KRAVCHENKO, P.V., prof.; VOLKOV, V.Ye. (Kazan')

Diagnostic errors in "acute abdomen" with a rheumatic abdominal
syndrome. Klin.med. 38 no.11:47-50 N '60. (MIRA 13:12)
(ABDOMEN—DISEASES) (RHEUMATIC FEVER)

KRAVCHENKO, P.V., prof.; VOLKOV, V.Ye.

Treatment of acute suppurative peritonitis in children. Sov. med.
25 no.8:55-58 Ag '61. (MIRA 15:1)

1. Iz kafedry khirurgii i neotlozhnoy khirurgii (zav. - prof. P.V. Kravchenko) Kazanskogo gosudarstvennogo instituta usovershenstvovaniya vrachey imeni V.I.Lenina i otdeleniya neotlozhnoy khirurgii bol'nitsy No.5.

(PERITONITIS)

VOLKOV, V.Ye.

Effect of lumbar novocaine block on the functional activity of the adrenal cortex. Eksper. khir. i anest. 9 no.2:83-85 Mr-Apr '64.
(MIRA 17:11)

1. Kafedra khirurgii i neolozhnoy khirurgii (zav. - prof. P.V. Kravchenko) Kazanskogo instituta usovershenstvovaniya vrachey imeni Lenina.

VOLKOV, V. Yu.
4
Catalytic transformations of heterocyclic compounds.
XLVIII. Preparation of 3-isamyl-, 3-hexyl-, and 3-p-
tolyltetrahydrothiophenes from corresponding furanaldines.
Yu. K. Yurev, E. M. Lukina, Yu. M. Polikarpov, and V.
P. Volkov. J. Gen. Chem. U.S.S.R. 26, 683-8 (1956) (Engl.
translation).—See C. A. 50, 11803f. B. M. R. 11.

RAKOVSKIY, V.Ye., doktor tekhn.nauk, prof.; VOLKOV, V.Z., inzh.

Dissociation of nitrogen compounds over peat coke packings.
Torf.prom. 39 no.3:21-24 '62. (MIRA 15:4)

1. Institut torfa AN BSSR (for Rakovskiy). 2. Kalininskiy
torfyanoy institut (for Volkov).
(Peat) (Coke)

BOGDANOV, I.F.; VOLKOV, V.Z.; MOSIN, A.M.; FARBEROV, I.I., doktor tekhn.nauk

Problems in the chemical processing of gases obtained from under-
ground coal gasification. Trudy VNIIPodzemnogo no.13:26-31 '65.
(MIRA 18:8)

1. Institut goryuchikh iskopayemykh, Moskva.

RAKOVSKIY, V.Ye.; VOLKOV, V.Z.

Changes in the specific surface area of peat cokes in the process
of pyrolysis. Khim.i tekhn.topl.i masel 8 no.1:42-45 Ja '63.
(MIRA 16:2)

1. Institut torfa AN Belorusskoy SSR i Kalininskiy torfyanoy
institut.

(Peat)

(Coke)

(Pyrolysis)

RAKOVSKIY, V.Ye., doktor tekhn.nauk; VOLKOV, V.Z., inzh.

Pyrolysis of pyridine and quinoline over peat coke beds. Torf.prom.
40 no.1:28-30 '63. (MIRA 16:5)

1. Kalininskiy torfyanoy institut (for Volkov).
(Pyridine) (Quinoline) (Pyrolysis)

SOURCE CODE: UR/2517/66/074/000/0055/0085

ACC NR: AT7004275

AUTHOR: Volkov, Ye. A.

ORG: none

TITLE: Effective error estimates of the net-point method solution of a boundary value problem for Laplace and Poisson equations on a rectangle and some triangles

SOURCE: AN SSSR Matematicheskiy institut. Trudy, v. 74, 1966. Raznostnyye metody resheniya zadach matematicheskoy fiziki (Difference methods for solving problems in mathematical physics), pt. 1, 55-85

TOPIC TAGS: finite difference, error prediction, Laplace equation, Poisson equation, boundary value problem, *DIRICHLET PROBLEM*

ABSTRACT: The derivative solutions of the Dirichlet, Neumann, and mixed boundary value problems are discussed for the Poisson equation $\Delta u = f(x, y)$ on the rectangle $R: \{0 < x < a; 0 < y < b\}$.

The boundary conditions on Γ are

$$v_j u + \bar{v}_j u_n = v_j \varphi_j + \bar{v}_j \psi_j \text{ on } \Gamma_j, \quad j = 1, 2, 3, 4,$$

where $\sigma = \sum_{j=1}^4 v_j$ and $\sigma = 0$ corresponds to the Neumann problem. The following

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ACC NR: AT7004275

derivatives are evaluated

$$\frac{\partial^{2n} u}{\partial x^{2n}} = (-1)^n \frac{\partial^{2n} u}{\partial y^{2n}} = \sum_{\mu=0}^{n-1} (-1)^\mu \frac{\partial^{2n-2\mu} u}{\partial x^{2n-2\mu} \partial y^{2\mu}}$$

for: a - $\sigma = 4$ (the Dirichlet problem); b -

$$\sigma = 3, v_1 = 0, 1 \leq p+q \leq [k/2];$$

c -

$$\sigma = 2, v_1 = v_2 = 0, 1 \leq p+q \leq [k/2];$$

d -

$$\sigma = 2, v_1 = v_2 = 0, 1 \leq p+q \leq [k/2];$$

e -

$$\sigma = 1, v_1 = 1, 1 \leq p+q \leq [k/2],$$

and the Neumann problem

$$\sigma = 0$$

For $\sigma > 0$, the difference equations approximating the above Poisson equation are given by the set

$$u_h^A = Au_h^A + D_h f \quad \text{on } R_h,$$

$$u_h^A = \bar{v}_j A_j u_h^A + D_{jh}(f, \varphi_j, \psi_j) \quad \text{on } \Gamma_h \setminus \bigcup_{j=1}^4 \Gamma_{jh},$$

$$u_h^A = \bar{v}_j \bar{v}_{j+1} A_j u_h^A + D_{jh}(f, \varphi_j, \varphi_{j+1}, \psi_j, \psi_{j+1}) \quad \text{on } \Gamma_{jh} \cap \Gamma_{j+1h}, j = 1, 2, 3, 4;$$

and

$$u_h^B = Bu_h^B + E_h f \quad \text{on } R_h,$$

$$u_h^B = \bar{v}_j B_j u_h^B + E_{jh}(f, \varphi_j, \psi_j) \quad \text{on } \Gamma_h \setminus \bigcup_{j=1}^4 \Gamma_{jh},$$

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ACC NR: AT7004275

$$u_h^n = \bar{v}_j \bar{v}_{j+1} \bar{B}_j u_h^n + E_{jh}(f, \varphi_j, \varphi_{j+1}, \psi_j, \psi_{j+1}) \text{ on } \Gamma_{jh} \cap \Gamma_{j+1,h}, j = 1, 2, 3, 4.$$

To evaluate the approximate solution of Poisson's equation, S. A. Gerachgorin's majorant method is used (Fehlerabschätzung für das Differenzenverfahren zur Lösung partieller Differentialgleichungen. - Z. angew. Math. und Mech., 1930, 10, 373-382) for each case separately. For example, the error estimate for the Dirichlet problem leads to

$$|u_h^n - u| \leq h^4 c^2 (83\Phi^6 + 5c^2\Phi^3)/30720,$$

where Φ is defined by

$$\Phi^k = \max_j \sup_{\Gamma_j} |(v_j, \varphi_j)^{(k)}|, \quad \Phi = \Phi^0.$$

A similar result is obtained for the mixed boundary value problem corresponding to various combinations of σ and ν_j . The following error estimate is obtained for the Neumann problem

$$|u_h^n - u| \leq h^{4ab} (\bar{c}^* + \bar{c}^v) (U^{a,b} + 8U^{1,1} + U^{0,1} + 28F^4 + 32F^6)/714,$$

where F and U are defined by

$$\bar{F}^{a,b} = \sup_R |f_{x^a y^b}^{(a,b)}|, \quad U^k = \max_{a+b=k} U^{a,b}.$$

Error estimates are also obtained for reducing the Neumann problem to a Dirichlet problem and for reducing the Neumann problem to a mixed boundary value problem. The results are then applied to the supported plate problem and the Dirichlet problem for the Laplace equation of a triangle. Orig. art. has: 227 equations.

Card 3/3 SUB CODE: 12/ SUBM DATE: ncne/ ORIG REF: 017/ OTH REF: 010

BORISOV, M.D.; SUPRUNENKO, V.A.; SUKHOMLIN, Ye.A.; VOLKOV, Ye.D.

[Stability of a heavy-current discharge in hydrogen at low electric field strength] Issledovanie ustoychivosti vysokotochnogo razriada v vodorode pri malykh napriazhenostiakh elektricheskogo polia. Khar'kov, Fizikotekhn. in-t AN USSR, 1960. 307-338 p. (MIRA 17:1)
(Electric discharges through gases)

RUDNEV, N.I.; SUPRUNENKO, V.A.; VOLKOV, Ye.D.; SUKHOMLIN, Ye.A.

Operation of controllable spark gaps in parallel connection
and in a "shortener" circuit. Zhur. tekhn. fiz. 31 no.11:1344-
1349 N '61. (MIRA 14:11)

1. Fiziko-tekhnicheskiy institut AN USSR, Khar'kov.
(Electric discharges)
(Electric apparatus and appliances)

27167

S/057/61/031/003/007/019
B104/B102

24.6750 also 3117

AUTHORS: Suprunenko, V. A., Sukhomlin, Ye. A., Volkov, Ye. D.,
and Rudnev, N. I.

TITLE: Conductivity of the plasma of a linear pinch

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 9, 1961, 1057-1060

TEXT: The conductivity of a linear hydrogen plasma pinch was studied by means of magnetic probes. The experimental arrangement consisted of a porcelain tube (inside diameter 18 mm, length 42 cm). To reduce the role of the escaping electrons, a potential of -4 kv was applied to the electrodes of the discharge tube. The field strength was varied between 1 and 10 v/cm, the current in the gas was 100 ka. Pre-ionization was achieved by a Penning discharge; a constant magnetic field of up to 1 kilogauss was generated by Helmholtz coils. This magnetic field was simultaneously used as a stabilizing field. The hydrogen pressure in the discharge tube was $1.5 \cdot 10^{-2}$ mm Hg. The condenser battery had a capacity of 15 μ f, and was charged to 30 kv. Discharge was performed with a pulse

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B104/B102

Conductivity of the plasma of a...

transformer, the secondary circuit of which comprised the discharge tube. The voltage was reduced by the transformer in the ratios of 1:6 to 1:3. Discharge current and distribution of the magnetic field were measured with different voltages in the discharge tube. The topography of the magnetic field was measured with nine magnetic probes. The signals of these probes were observed with five OK-17M (OK-17M) double-trace oscilloscopes. According to the distribution of H_z and H_ϕ , the authors determined the current density, the electric field strength in the plasma, and the conductivity of the latter. They determined the intensity distribution of the H_γ lines of the Palmer series of hydrogen by a monochromator and a photomultiplier. Besides, they filmed the discharge with a movie camera. They found the density of charged particles in the plasma to be 10^{16} ions/cm³. Fig. 1 shows that the conductivity of the plasma and the time of existence of a pinch decrease with increasing field strength. This behavior of the plasma can be explained by the theory developed by L. Spittser (L. Spitzer) (Fizika polnost'yu ionizirovannogo gaza (Physics of the fully ionized gas). IL, p. 97, 1957).

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27167

S/057/61/031/009/007/019
B104/B102

Conductivity of the plasma of a...

Another possible explanation for the found dependence of the electrical conductivity on the electric field is given by considering the interaction of electrons with neutral atoms, which practically always occurs in a discharge. From a certain temperature depending on the degree of ionization of the plasma, the electron interaction with neutral particles is shown to surpass the interaction with ions. The respective critical temperature was estimated to be 30 ev. V. D. Shapiro is mentioned. The authors thank K. D. Sinel'nikov, Academician of the AS UkrSSR, and Ya. B. Faynberg for discussions, as well as M. I. Rev, Degree Student at the Gosudarstvennyy universitet im. Gor'kogo (State University imeni Gor'kiy), for his help. There are 2 figures and 9 references: 4 Soviet and 4 non-Soviet. The two references to English-language publications read as follows: L. C. Burkhardt et al., Nature, 181, 229, 1958; Project Sherwood, Massachusetts, 209, 1958.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR Khar'kov
(Physicotechnical Institute AS UkrSSR, Khar'kov)

SUBMITTED: October 10, 1960

Card 3/4

SUPRUNENKO, V.A.; SUKHOMLIN, Ye.A.; VOLKOV, Ye.D.; RUDNEV, N.I.

Conductivity of plasma in a ~~straight~~-line pinch. Zhur. tekhn.
fiz. 31 no.9:1057-1060 S '61. (MIRA 14:8)

1. Fiziko-tekhnicheskiy institut AN USSR, Khar'kov.
(Plasma(Ionized gases)--Electric properties)

28778

S/057/61/031/010/011/015
B109/B102

10 2000
26.2321

AUTHORS:

Suprunenko, V. A., Volkov, Ye. D., Reva, N. I.,
Sukhomlin, Ye. A., Burchenko, P. Ya., and Rudnev, N. I.

TITLE:

Study of dynamics of a pinch in a magnetic field

PERIODICAL:

Zhurnal tekhnicheskoy fiziki, v. 31, no. 10, 1961, 1246-1247

TEXT:

The behavior of a pinch with respect to $m = 1$ -type instabilities was investigated experimentally. Test arrangement: Discharge tube made of porcelain; Inner diameter 18 cm, length 42 cm, hydrogen filling ($p = 1.5 \cdot 10^{-2}$ mm Hg). Current source: 15-microfarad capacitor. Discharge period: 30 to 60 μ sec. The discharge tube contained nine magnetic probes for determining the H_φ and H_z distributions. The measured values were recorded by five synchronized oscilloscopes OK-17M (OK-17M). Distribution of charge, current density, etc., were thus known for any point. Measuring results: The deviation amplitude of the discharge from the axis of the discharge tube is proportional to \sqrt{E} (E - field strength), i. e., proportional to the current density (for measured values see Fig.3). The radial velocity of the discharge, that is also growing linearly with

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24778 S/057/61/031/010/011/015
B109/B102

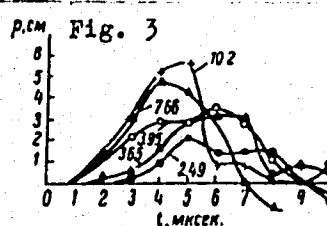
Study of dynamics of a...

\sqrt{E} , shows the same qualitative behavior. V. D. Shafranov (Sb. "Fizika plazmy", t. 4, str. 130, 1958) is mentioned. There are 5 figures and 3 Soviet references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR Khar'kov (Physico-technical Institute AS UkrSSR, Khar'kov)

SUBMITTED: January 31, 1961

Fig. 3. Deviation of the discharge from the tube center at different electric field strengths in the plasma. E varies between 10.2 and 2.49 v/cm. Abscissa: time in μsec .



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30097
S/057/61/031/011/012/019
B125/B102

24.7311

AUTHORS: Rudnev, N. I., Suprunenko, V. A., Volkov, Ye. D., and
Sukhomlin, Ye. A.

TITLE: Operation of controllable spark dischargers with parallel
connection and in a short circuit

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 11, 1961, 1344-1349

TEXT: The present paper deals with the construction of a discharger (Fig. 1) and the delay of its wear as a function of the power of the igniting pulse (duration $> 10^{-3}$ sec) for a wide interval of interelectrode voltage. Two graphite-filled hemispheres (radius 60 mm) served as principal electrodes. The spark gap was fed from a battery consisting of ten capacitors. Fig. 2 shows the electric circuit of the spark gap. Its duration of wear Δt consists of the delay Δt_1 between the beginning of the pulse applied and the instant of spark-over on the ignition electrode, and the delay Δt_2 between the spark-over on the ignition electrode and the spark-over between the principal electrodes. Δt_1 which only depends on

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S/057/61/031/011/012/019
B125/B102

Operation of controllable spark...

the ignition voltage can be made smaller than 10^{-7} sec by a proper choice of the parameters of the ignition pulse. Special attention was paid to a reduction of power losses of the igniting pulse. Strong magnetic fields of great duration were generated by the circuit shown in Fig. 7. The pulses had rather a steep front with weakly sloping back side. The igniting pulse was formed by discharge of a 3-microfarad capacitor at 10+40 kv over an auxiliary spark gap P_3 . The spark gap operates quite

accurately in the voltage range investigated. In some experiments on the reduction of inductivity of the bars, each capacitor of the battery has to be connected with the bus bar over a separate spark gap. In this case, the simultaneous response of all spark gaps is important. This is guaranteed by the fact that the igniting pulse reflected from the discharge interval arrives at the collector when the discharge over the other spark gaps has already begun. For dependable operation of the spark gaps with parallel connection, the voltage on the principal electrodes should not differ too much from the static spark-over voltage. Therefore, the interspace between principal electrodes should be quickly and accurately adjustable. There are 10 figures and 5 references: 3 Soviet and 2 non-Soviet. The two references to English-language publications read as

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30097

S/057/61/031/011/012/019
B125/B102

Operation of controllable spark...

follows: J. D. Graggs, M. E. Haine, J. M. Meek, JIEE, 93, 963, 1946;
A. M. Sletten, C. J. Lewis, Proc. IEE, 104, 54, 1957.

ASSOCIATION: Fiziko-tekhnicheskii institut AN USSR Khar'kov (Physico-
technical Institute of the AS UkrSSR Khar'kov)

SUBMITTED: January 27, 1961

Fig. 1. Discharger.

Fig. 2. Circuit diagram with
ignition circuit.

Fig. 7. Short circuit diagram
("zakorotka").

Fig. 10. Circuit of parallel
connection.

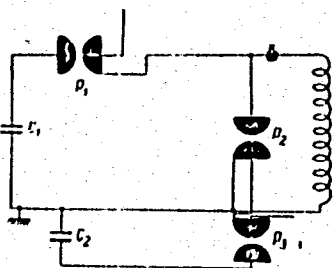


Fig. 7

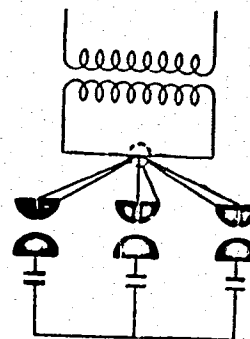


Fig. 10

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SUPRUNENKO, V.A.; VOLKOV, Ye.D.; REVA, N.I.; SUKHOMLIN, Ye.A.; BURCHENKO,
P.Ya.; RUDNEV, N.I.

Dynamics of pinch in a magnetic field. Zhur. tekhn. fiz. 31 no.10:
1246-1247 0 '61. (MIRA 14:9)

1. Fiziko-tekhnicheskii institut AN USSR, Khar'kov.
(Magnetic fields)

S/781/62/000/000/028/036

AUTHORS: Borisov, M. D. (deceased), Suprunenko, V. A., Sukhomlin Ye. A.,
Volkov, Ye. D.

TITLE: Investigation of stability of high-current discharge in hydrogen
at low electric field intensities

SOURCE: Fizika plazmy i problemy upravlyayemogo termoyadernogo sinteza;
doklady I konferentsii po fizike plazmy i probleme upravlyayemykh
termoyadernykh reaktsiy. Fiz.-tekh. inst. AN. Ukr.SSR., Kiev,
Izd-vo AN Ukr. SSR, 1962. 133-138

TEXT: A self-constricting discharge in a longitudinal magnetic field was
investigated for stability in either a constant or programmed mag-
netic field, with a stabilizing screen used to increase the magnetic-field
gradient on the discharge boundary, as called for by Suydam's criterion. The dis-
charge was produced with a 15 microfarad capacitor bank with maximum stored
energy 18.7 kilojoules. A rapidly alternating magnetic field was produced in
the porcelain discharge chamber by a copper busbar loop, which served simulta-

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Investigation of stability ...

S/781/62/000/000/028/036

neously as a stabilizing jacket. The field distributions on the radius of the tube were measured with a magnetic probe, and the current density and electric field intensity were determined from the obtained distribution. At low field intensities, all distributions had two peaks along the radius, the second peak corresponding to the presence of a cylindrical conducting layer around the pinch. Large currents flow in this jacket, in spite of the low conductivity, because the electric field at that location is almost ten times larger than in the pinch. The pinch was found to be stable in these experiments up to 10 microseconds. When the electric field is increased, the double-peak distribution disappears and the results become similar to those obtained with the "Columbus-S-4" installation. The results showed good repeatability. It is concluded that the experiments with programmed field indicate the development of some type of instability under the influence of the alternating magnetic field, which lead to some magnetic-sound oscillations in the pinch. These oscillations prevent prolonged existence of large magnetic-field gradients on the pinch surface and the satisfaction of the Suydam criterion. There are 11 figures. The major western work referred to is by Tuck, Tayler, Suydam (in Russian translation) and Harrison (ref. 6, Phil. Mag. 1318-1325, 1959).

Card 2/2

VOLKOV, YE. D.
ACCESSION NR: AT4036051

S/2781/63/000/003/0144/0150

AUTHORS: Suprunenko, V. A.; Faynberg, Ya. B.; Tolok, V. T.; Sukhomlin, Ye. A.; Reva, N. I.; Burchenko, P. Ya.; Rudnev, N. I.; Volkov, Ye. D.

TITLE: Coherent interaction of runaway electrons in a pinch

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i problemy upravlyayemogo termoyadernogo sinteza (Plasma physics and problems of controlled thermonuclear synthesis); doklady* konferentsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 144-150

TOPIC TAGS: plasma pinch, plasma radiation, plasma ion oscillation, plasma electron oscillation, plasma compression, discharge plasma

ABSTRACT: The coherent radiation of transverse electromagnetic waves with frequency close to $\omega_0 (m_e/m_i)^{1/3}$ (ω_0 -- frequency of longi-

Card 1/03

ACCESSION NR: AT4036051

tudinal oscillations, m_e -- electron mass, M_i -- ion mass) excited in a plasma by a beam of "runaway electrons," was investigated. The experiments were carried out in a straight tube (alundum, 10 cm dia, 25 cm long) usually filled with hydrogen at 1.3 n/m^2 , through which a 15 F capacitor bank was discharged from 30--40 kV. Preliminary experiments with the setup were reported elsewhere (ZhTF, v. 30, 1057, 1961). In the present experiment the formation of the current of runaway electrons was investigated along with its correlation with the electromagnetic radiation of the plasma; some characteristics of this radiation were also investigated. The measurements have shown that an electron current, with energy equal to the maximum energy, constituted a small fraction of the total runaway electron current, the bulk of the current being due to electrons with energy somewhat higher than thermal but much lower than maximal. Part of the runaway electron beam goes to the development of electrostatic instabilities in the discharge, which give rise to the occurrence of the electromagnetic radiation. The radiation was found to

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ACCESSION NR: AT4036051

be coherent in the entire range of investigated initial gas pressures, with an intensity which is constant practically along the entire discharge length. The frequency of the electromagnetic radiation was found to be close to the plasma frequency and the power to exceed appreciably the power of thermal radiation from the plasma. The transformation of the longitudinal electrostatic oscillations into transverse electromagnetic waves can be attributed to the non-linearity of the oscillations in the plasma due to the large amplitude, and also to boundary effects on the surface of the plasma pinch. Orig. art. has: 5 figures and 3 formulas.

ASSOCIATION: None

SUBMITTED: 00.

SUB CODE: ME

Card 3/6

DATE ACQ: 21May64

NR REF SOV: 006

ENC: 03

OTHER: 003

SUPRUNENKO, V.A.; FAYNBERG, Ya.B.; TOLCK, V.T.; SUKHOMLIN, Ye.A.; REVA, N.I.;
BURCHENKO, P.Ya.; RUDNEV, N.I.; VOLKOV, Ye.D.

Electromagnetic radiation from a plasma produced by a straight
high-current discharge. Atom. energ. 14 no.4:349-352 Ap '63.
(MIRA 16:3)

(Plasma (Ionized gases)) (Electromagnetic waves)

VOLKOV, Ye. D.

AID Nr. 981-5 3 June

COHERENT EM RADIATION FROM A HIGH CURRENT DENSITY PLASMA
(USSR)

Suprunenko, V. A., Ya. B. Faynberg, V. T. Tolok, Ye. A. Sukhomlin,
N. I. Reva, P. Ya. Burchenko, N. I. Rudnev, and Ye. D. Volkov. Atomnaya
energiya, ~~vol.~~ no. 4, Apr 1963, 349-352; S/089/63/014/004/001/019

Results are given of experiments with plasma discharges at high current densities. Intense radial EM radiation was detected which was coherent and close to Langmuir frequency. Test apparatus included an aluminum discharge tube, 10 cm in diameter and 25 cm in length, charged with H_2 ; aluminum electrodes, connected by a 15- μ f capacitor bank charged to 30-40 kv and yielding a discharge current of about 100 kamp; an axial magnetic field variable from 0 to 10 kgs. Efforts to insure repeatability included the use of metal vacuum seals and a titanium pump, the baking of the apparatus at 300°C, and pre-ionization of the gas mixture prior to discharging. Electric field gradients of 300-500 v/cm gave a high "runaway" electron condition in the discharge beam.

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REVA, N.I.

AID Nr. 981-5 3 June

COHERENT EM RADIATION FROM A HIGH CURRENT DENSITY PLASMA
(USSR)

Suprunenko, V. A., Ya. B. Faynberg, V. T. Tolok, Ye. A. Sukhomlin,
N. I. Reva, P. Ya. Burchenko, N. I. Rudnev, and Ye. D. Volkov. Atomnaya
energiya. ~~14~~ no. 4, Apr 1963, 349-352. S/089/63/014/004/001/019

Results are given of experiments with plasma discharges at high current densities. Intense radial EM radiation was detected which was coherent and close to Langmuir frequency. Test apparatus included an aluminum discharge tube, 10 cm in diameter and 25 cm in length, charged with H₂; aluminum electrodes, connected by a 15- μ f capacitor bank charged to 30-40 kv and yielding a discharge current of about 100 kAmp; an axial magnetic field variable from 0 to 10 kG. Efforts to insure repeatability included the use of metal vacuum seals and a titanium pump, the baking of the apparatus at 300°C, and pre-ionization of the gas mixture prior to discharging. Electric field gradients of 300-500 v/cm gave a high "runaway" electron condition in the discharge beam.

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ACC NR: AP6008748 SOURCE CODE: UR/0386/66/003/006/0243/0247

AUTHOR: Burchenko, P. YA.; Vasilenko, B. T.; Volkov, YE. D.; Nikolayev, R. M.;
Potapenko, V. A.; Tolok, V. T.

ORG: Physicotechnical Institute, Academy of Sciences, UkrSSR (Fiziko-tekhnicheskii
institute Akademii nauk UkrSSR)

TITLE: Excitation and thermalization of plasma oscillations in a stellarator

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu.
Prilozheniye, v. 3, no. 6, 1966, 243-247

TOPIC TAGS: controlled thermonuclear reaction, plasma confinement, plasma electron
oscillation, plasma electron temperature, ~~Sirius~~ magnetic trap, electric field

ABSTRACT: The authors studied the influence of collective processes on the behavior
of a plasma in a closed stellarator-type magnetic trap (Sirius), comprising a race-
track with two trifilar helical windings placed on the toroidal sections. The stel-
larator had a vacuum chamber with axial length 600 cm and minor diameter 10 cm, a
maximum retaining field $H_0 = 2 \times 10^4$ oe, and $\beta_c = 8\pi n k T / H_0^2 = 7.5 \times 10^{-4}$. To excite
intense collective oscillations, a longitudinal electric field of large amplitude
($E \geq E_k = 1.58 \times 10^{-8}$ n/Te), was applied to a plasma produced in the stellarator cham-
ber by a pre-ionization generator. All the experiments were made at initial neutral-
helium pressures 5×10^{-5} -- 8×10^{-4} mm Hg. The experiments consisted of measuring
the plasma current and the loop voltage in the chamber, the plasma density, the x-
radiation from the diaphragm limiting the plasma pinch and from the chamber walls, the

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microwave radiation from the plasma, and the integral amount of light. With increase in field, the initially sinusoidal current signal became distorted, and after build-up of the oscillations, the current decreased to a value $I = 100\text{--}200$ A, at which level it remained for $10\text{--}20$ μsec , although a rather large electric field was applied to the plasma. In all the intervals of the investigated neutral gas pressure and electric and magnetic field intensities the discharge was accompanied by microwave emission from the plasma at wavelengths $\lambda = 2\text{--}4$ cm. In stronger electric fields a broad spectrum of oscillations was excited in the plasma at wavelengths $4.6\text{--}200$ cm, with the maximum radiated power in the $12\text{--}15$ cm interval. In electric fields stronger than critical, the plasma emits also intense x-rays, from which it is deduced that the plasma contains a group of electrons with almost-Maxwellian velocity distribution and with a temperature that ranges from 4 to 9 kev. Measurements of the integral amount of light have shown that at the instant of excitation of the collective processes and appearance of x-radiation from the chamber walls the intensity of plasma glow decreases abruptly, thus confirming indirectly the fact that the electrons become heated. Authors thank K. D. Sinel'nikov for interest in the work and valuable discussions. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 31Jan66/ (RIG REF: 003/ OTH REF: 002

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VOLKOV, Ya. (Stravropol', Kuybyshevskoy oblasti)

Trust. Otkr. truda i sots. strakh. 4 no.1:30-31 Ja '61. (MIRA 14:3)

(Kuybyshev Province—Industrial hygiene)

KARLOV, V., vrach (Sochi); VOLKOV, Ya.

Physician of a health resort polyclinic. Okhr. truda i sots. strakh.
4 no. 12:14-15 D '61. (MIRA 14:11)

1. Korrespondent zhurnala "Okhrana truda i sotsial'noye
strakhovaniye". (Rizo, Natal'ia Petrovna)

VOLKOV, Ya.

Overhaul of equipment and buildings of metallurgical plants. Sots.
trud 5 no.1:130-132 Ja '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii
proizvodstva i truda chernoy metallurgii, g. Khar'kov.
(Metallurgical plants--Maintenance and repair)

NEVENITSA, A. (Ulan-Ude); VOLKOV, Ya. (Ulan-Ude)

At a glass factory in Ulan-Ude. Okhr.truda i sots.strakh. 5
no.12:14-15 D '62. (MIRA 16:2)

1. Sekretar' Buryatskogo oblastnogo komiteta professional'nogo
soyuza rabochikh stroitel'stva i promyshlennosti stroitel'nykh
materialov (for Nevenitsa). 2. Spetsial'nyy korrespondent
zhurnala "Okhrana truda i sotsial'noye strakhovaniye" (for Volkov).
(Kostroma—Plywood industry—Hygienic aspects)

VOLKOV, Ya.F.; PAVLOV, Yu.S.; TOLOK, V.T.; SKIBENKO, A.I.

[A plasma in a variable magnetic field] Plazma v pere-
nom magnitnom pole. Khar'kov, Fiziko-tekhn. in-t AN USSR,
1960. 255-266 p. (MIRA 17:3)

89169

S/057/61/031/002/015/015
B124/B202

26.2321

AUTHORS: Volkov, Ya. F., Tolok, V. T., and Sinel'nikov, K. D.

TITLE: Study of the electrodeless discharge in a magnetic trap with additional azimuthal magnetic field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 2, 1961, 255-258

TEXT: The plasma can be heated by a fast magnetic trap. In such a system, the diameter of the plasma cylinder is shortened during compression, which leads to a looser connection between coil and plasma in experiments of plasma heating by means of ion-cyclotron resonance. The presence of an initial magnetic field H_0 may prevent a strong shortening of the radius of the plasma cylinder without changing the degree of compression. Experiments were made with the field H_0 to obtain a hollow plasma cylinder and to explain the interaction between the plasma and such a system of magnetic fields. The authors also studied gamma radiation which almost always accompanies such discharges. The discharge of two condenser batteries caused the formation of a three-phase field with the voltage $E_{q1} = 30$ v/cm, $E_{q2} = 3$ v/cm with a period of 20 and 270 msec, respectively, with an axial

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magnetic field intensity $H_z = 5$ koe and a mirror ratio of 2:1. A further condenser battery was discharged above a rod which lies in the axis of the system thus producing a field H_ϕ ; discharge current $I = 20$ ka. Fig. 2, a, b, v, g shows the "SFR-graphs" in argon, which indicate that H_ϕ causes no plasma compression; the plasma exists in the form of two coaxial cylinders one of them bordering the rod (Fig. 2, a, b). The drift along the axis Z (Fig. 2, v, g) is caused by the force acting upon the ions as a result of their motion relative to the axis in the field H_ϕ . With changed sign of H_ϕ also the direction of drift is reversed. The same holds for the hydrogen plasma. X-radiation was studied under the following conditions: 1) Anti-parallel connection of coils without occurrence of gamma radiation; 2) parallel connection of coils in the presence of H_ϕ ; under these conditions gamma radiation had an energy of about 50 kev and a mean intensity of 20 mr/discharge. Gamma radiation was observed in argon in the pressure range $p = 5 \cdot 10^{-4} - 5 \cdot 10^{-3}$ mm Hg and in hydrogen at $p = 2 \cdot 10^{-3} - 3 \cdot 10^{-2}$ mm Hg. Fig. 3, a, b shows the oscillograms of the magnetic field, the shf signal ($\lambda = 4$ mm), and of gamma radiation. By means of a lead collimator the author shows that radiation in the region

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of the minimum of the magnetic field occurs between the mirrors. With $E_{\phi 2} = 3 \text{ v/cm}$ no gamma radiation occurs independently of the other conditions; 3) parallel connection of the coils in the presence of H_0 . The presence of H_y changes the character of gamma radiation; the energy increases up to about 100 kev; the pressure region in which gamma radiation is formed is shifted to the high-vacuum by one order of magnitude; with increasing H_y gamma radiation occurs every half period beginning with the formation of the plasma. The intensity of gamma radiation increases and amounts to approximately 2.5 r/dischage. The photography of discharge in X-rays shows that the emission from the rod has its origin in the region between the mirrors. The glass tube which is inserted parallel to the rod at a distance of 1 cm reduces radiation intensity by 7-10 times. Fig. 3, v shows the oscillograms of radiation and the field H_z in the presence of H_y . There are 2 figures and 1 Soviet-bloc reference.

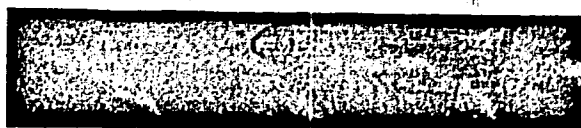
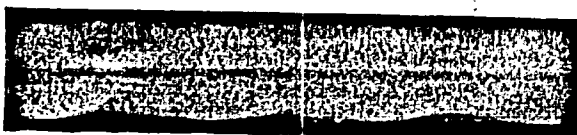
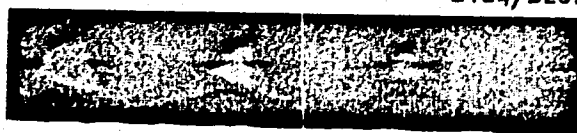
SUBMITTED: September 10, 1960

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89169

Study of the electrodeless...

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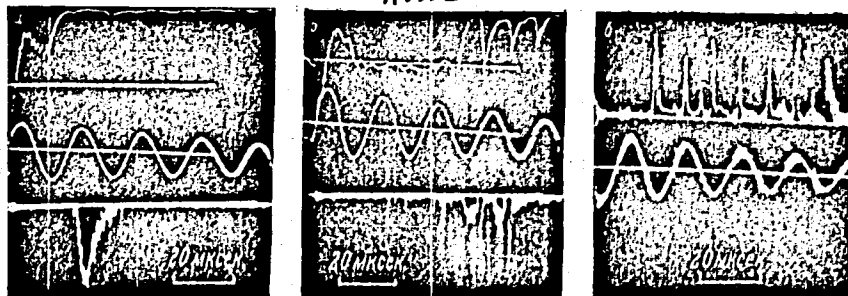
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A66.2

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Legend to Fig. 3: a - in the absence of the field H_y , $p = 1.5 \cdot 10^{-2}$ mm Hg
b - in the absence of field H_y , $p = 3 \cdot 10^{-3}$ mm Hg (upper oscillograms -
passage of the shf signal through the plasma, mean magnetic field H_z ,
lower-gamma radiation); v - in the presence of the field H_y (upper
oscillogram - gamma radiation, lower oscillogram - field H_z) 20 μ sec.



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S/781/62/000/000/026/036

AUTHORS: Volkov Ya. F., Pavlov Yu. S., Tolok V. K., Skibenko A. I.

TITLE: Plasma in an alternating magnetic field

SOURCE: Fizika plazmy i problemy upravlyayemogo termoyadernogo sinteza; doklady I konferentsii po fizike plazmy i probleme upravlyayemykh termoyadernykh reaktsiy. Fiz.-tekhn. inst. AN Ukr.SSR. Kiev, Izd-vo AN Ukr. SSR, 1962. 127-130

TEXT: The behavior of a plasma pinch in an alternating magnetic field was measured for two types of magnetic fields, one producing a PIG discharge (constant field) and one producing total ionization and detachment of the plasma from the walls. The magnetic field was measured with probes and the density with an electric probe and also with a 4 mm microwave signal. The maximum density was found to be about 10^{15} per cc. In the case of the PIG discharge the density increases sharply toward the second or third maximum of the field, but in the case of no preliminary ionization the maximum occurs at the fourth or fifth maximum. The decrease in density and the breakup of the pinch with constant magnetic field are slowed down when the fields add and accelerate when the fields sub-

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Plasma in an alternating magnetic field

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tract. This is confirmed by streak photography. Sharp contraction of the plasma gives rise to radial oscillations of the pinch, which are more pronounced in argon than in hydrogen (because the frequency is higher). The slight increase in the magnetic field in the plasma close to the zero of the external field can be attributed to the fact that the plasma traps the magnetic field of the preceding cycle and the latter grows with compression of the plasma by the growing external field. The frequency of the plasma oscillation agrees roughly with the value obtained by Tuck (ref.4, cited in the Russian translation) for plasma in a straight-line discharge. There are four figures.

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38929
S/057/62/032/007/003/013
B104/B102

AUTHORS: Volkov, Ya. F., Tolok, V. T., and Sinel'nikov, K. D.

TITLE: γ -emission from a discharge in a magnetic trap with additional azimuthal magnetic field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 7, 1962, 811-816

TEXT: In this continuation of an earlier paper (Ya. F. Volkov et al., ZhTF, XXXI, 255, 1961) the γ -emission is studied as a function of the discharge parameters, the locus and the mechanism of the electron acceleration is clarified, and the role of the azimuthal magnetic field is also examined. An electrodeless discharge was produced in argon gas flowing through a spherical molybdenum glass flask (Fig. 1). The azimuthal magnetic field was generated by the central current-carrying Cu bar. One of the tantalum targets could be radially shifted in the equatorial plane. These were used to determine the electron acceleration orbits. The γ -emission generated by the deceleration of fast electrons in the plasma was measured by an Φ 3Y-29 (FEU-29) photomultiplier with NaI crystal, the magnetic field by means of probes. The azimuthal field

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γ -emission from a discharge in a ...

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B104/B102

increased the intensity of the γ -emission fourfold, the energy between threefold and fourfold. The azimuthal field prevents a contraction of the hollow plasma filament toward the copper bar. There are 7 figures. *f*

SUBMITTED: August 10, 1961

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BP

ACCESSION NR: AT4036059

S/2781/63/000/003/0199/0206

AUTHORS: Volkov, Ya. F.; Tolok, V. T.; Krivoruchko, S. M.

TITLE: Plasma of Theta pinch in a magnetic grid

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i prob-
lemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and
problems of controlled thermonuclear synthesis); doklady* konfer-
entsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 199-206

TOPIC TAGS: plasma pinch, plasma confinement, magnetic mirror,
plasma stability, plasma decay, plasma physics

ABSTRACT: Experiments were set up to ascertain the confining abil-
ity of a magnetic grid without a longitudinal field, where the
plasma is injected from the ends of the chamber. Another purpose
of the experiment was to compare the stability and cleanliness of a

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ACCESSION NR: AT4036059

Θ -pinch plasma with a peripheral field and without it. The experimental setup and the procedure are described. Measurement of the lifetime of the plasma with density above $6 \times 10^{13} \text{ cm}^{-3}$, and of the intensity of the peripheral field B_ϕ between neighboring conductors at zero longitudinal field, made at a constant pressure of 13.3 n/m^2 , has shown that the confinement time increases from 20 to 70 microseconds as the field is increased from 0.5 to $24 \times 10^4 \text{ A/m}$. The existence is proportional to $B_\phi^{2/3}$. Superposition of the field of the magnetic grid on the Θ pinch apparently decreases the instability; the particles are lost predominantly through the magnetic gaps. The amount of impurity (from the walls) in the discharge decreases with increasing B_ϕ , and the amount of absorbed hydrogen released from the walls also increases. It is pointed out that the results of these experiments are still preliminary, in view of the small diameter of the chamber and the small values of the magnetic field. Orig. art. has: 6 figures.

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ACCESSION NR: AT4036059

ASSOCIATION: None

SUBMITTED: 00

SUB CODE: ME

DATE ACQ: 21May64

NR REF SOV: 005

ENCL: 02

OTHER: 003

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